WE CLAIM:

1. An arrangement in the fuel injection system for controlling the fuel injection, the arrangement (4) comprising a body part (5) having a space (6) arranged therein, through which space the fuel to be injected during operation flows, and a fuel inlet opening (7) and an outlet opening (8) opening into the space, additionally the arrangement (4) further comprises a piston means (9) arranged movably inside the space, the piston means having a channel or the like (12, 14, 15) arranged therein for creating a flow connection between the fuel inlet opening (7) and the outlet opening (8), whereby in the arrangement the piston means (9) can divide the space (6) into a first part (6.1) being in connection with the inlet opening (7) and a second part (6.2) being in connection with the outlet opening (8), the arrangement further comprising a spring or the like (10) for creating a force acting on the piston means (9) in a direction opposite to the main direction of the fuel flow, **characterized** in that in the arrangement the piston means (9) and the body part (5) delimit at least one third part (6.3) as the piston means is in the end adjacent the inlet opening (7) or near it, the volume of the third part being dependent on the mutual positions of the piston means (9) and the body part (5).

2. An arrangement according to claim 1, **characterized** in that the piston means (9) and the space (6) are cylindrically formed and together they form at least two separate sliding surfaces (17, 17', 18) formed at different distances from the central axis of the piston means and the space.

3. An arrangement according to claim 1 or 2, **characterized** in that when the piston means (9) is in the end adjacent the inlet opening (7) the volume of the third part (6.3) is at its smallest and as the piston means retracts a certain distance (L1) away from the end adjacent the inlet opening (7) the volume of the third part (6.3) increases and that as the piston means (9) retracts beyond the certain distance (L1), the third part (6.3) and the first part (6.1) of the space are combined.

4. An arrangement according to claim 1 or 2, **characterized** in that the third part (6.3) of the space is in continuous flow connection (12, 13) with the fuel inlet opening (7) and/or the first part (6.1) of the space.

5. An arrangement according to claim 3, **characterized** in that the flow connection is achieved by means of a throttling channel or the like (13).

6. An arrangement according to claim 1, **characterized** in that the space (6) is cylindrical and it comprises at least two portions (5.1, 5.2) having different diameters (CD1, CD2), with the portion (5.1) having the smaller diameter (CD1) being in the end adjacent the inlet opening (7) and that the piston means (9) correspondingly comprising two portions (9.1, 9.2) having different diameters (PD1, PD2), with the portion (9.1) having the smaller diameter (PD1) being in the end adjacent the inlet opening (7) and that both the longitudinal length (L2) of the portion (9.1) of the piston means having the smaller diameter and the longitudinal length (L1) of the of the portion (5.1) of the space (6) having the smaller diameter are shorter than the length (L3) of the stroke of the piston means (9).

7. An arrangement according to the any of the preceding claims, **characterized** in that when the piston means is in the end adjacent the outlet opening (8) the piston means joins the body part (5) so that they together close the flow connection of fuel to the inlet opening (7).